The History of Instrument Flight

Bill Ercoline
Advanced Information Engineering Services
General Dynamics

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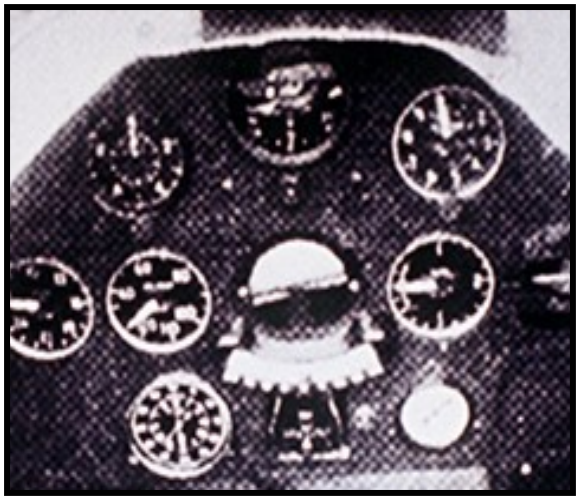
DoD Human Factors Engineering Technical Advisory Group Meeting 50



www.spatiald.wpafb.af.mil

1903 Wright Flyer -- 17 December 1903

120 feet in 12 seconds

Wright 1909 Military Flyer

Slip Ribbon (first flight

WWI Dog Fight/Pilot Skill Metric

Soesterberg, Holland
Lt (Dr) van Wulfften Palthe
circa 1920

“Brik”

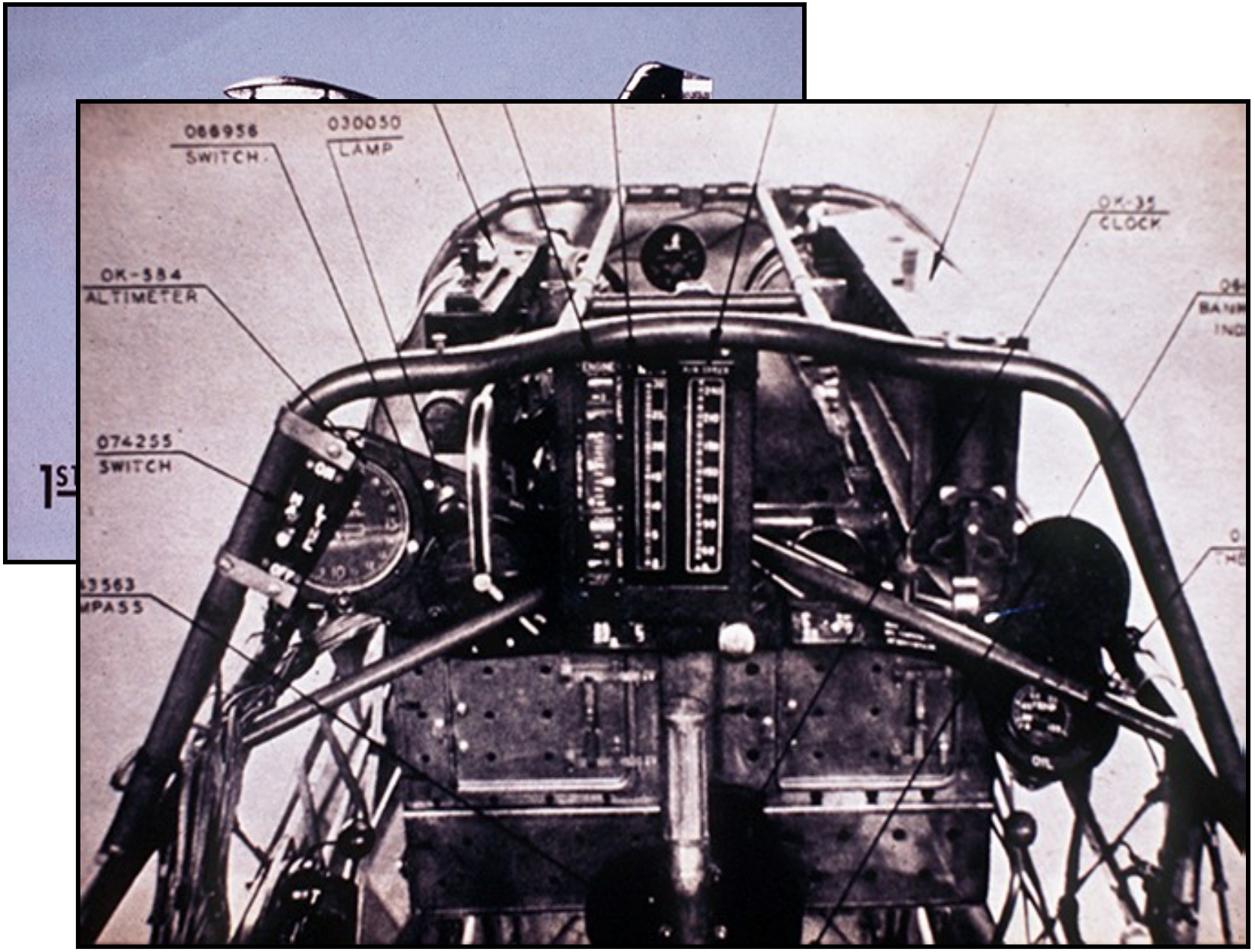
Farman F-20

“Function of the Deeper Sensibility and of the Vestibular Organs in Flying,” Flight Lieutenant Royal Dutch Flying Corps

First USA Account

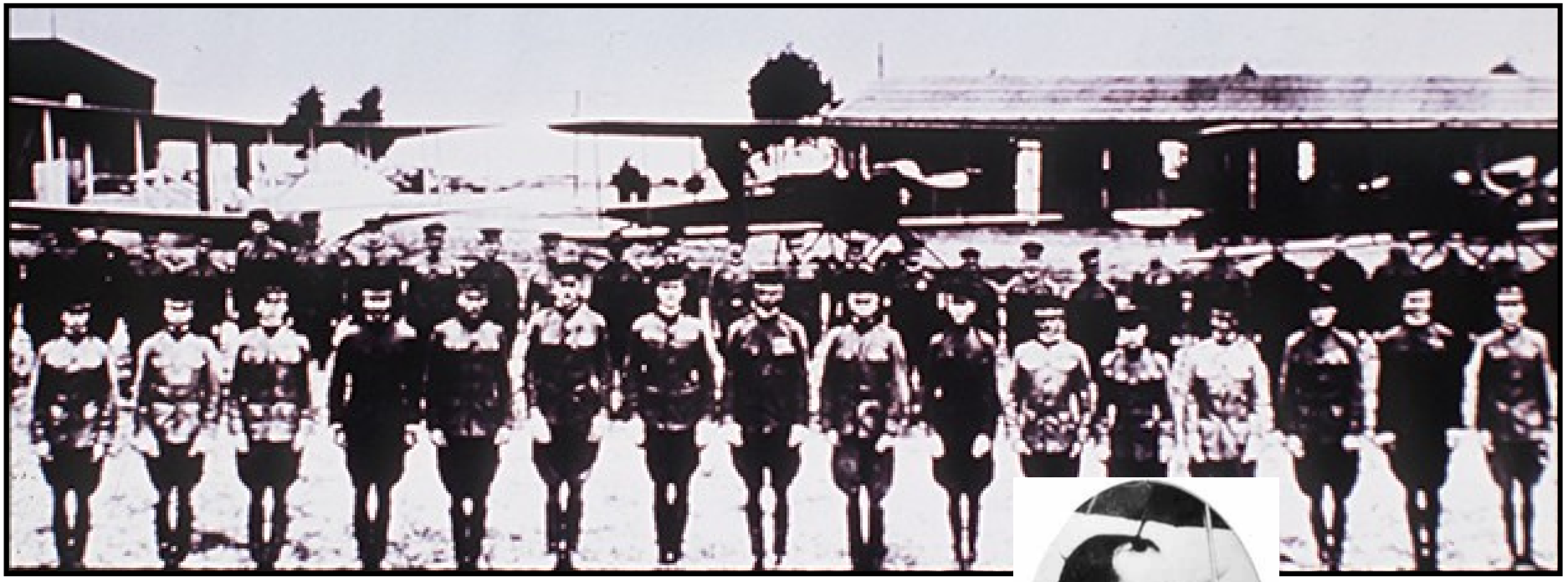
- May 2-3, 1923
- Lt John Macready and Lt Oakley Kelly
- T-2 Fokker
- First non-stop transcontinental flight
- Comment made in a National Geographic Society Magazine article

Early Test Pilots at McCook Field Dayton, OH Circa 1923

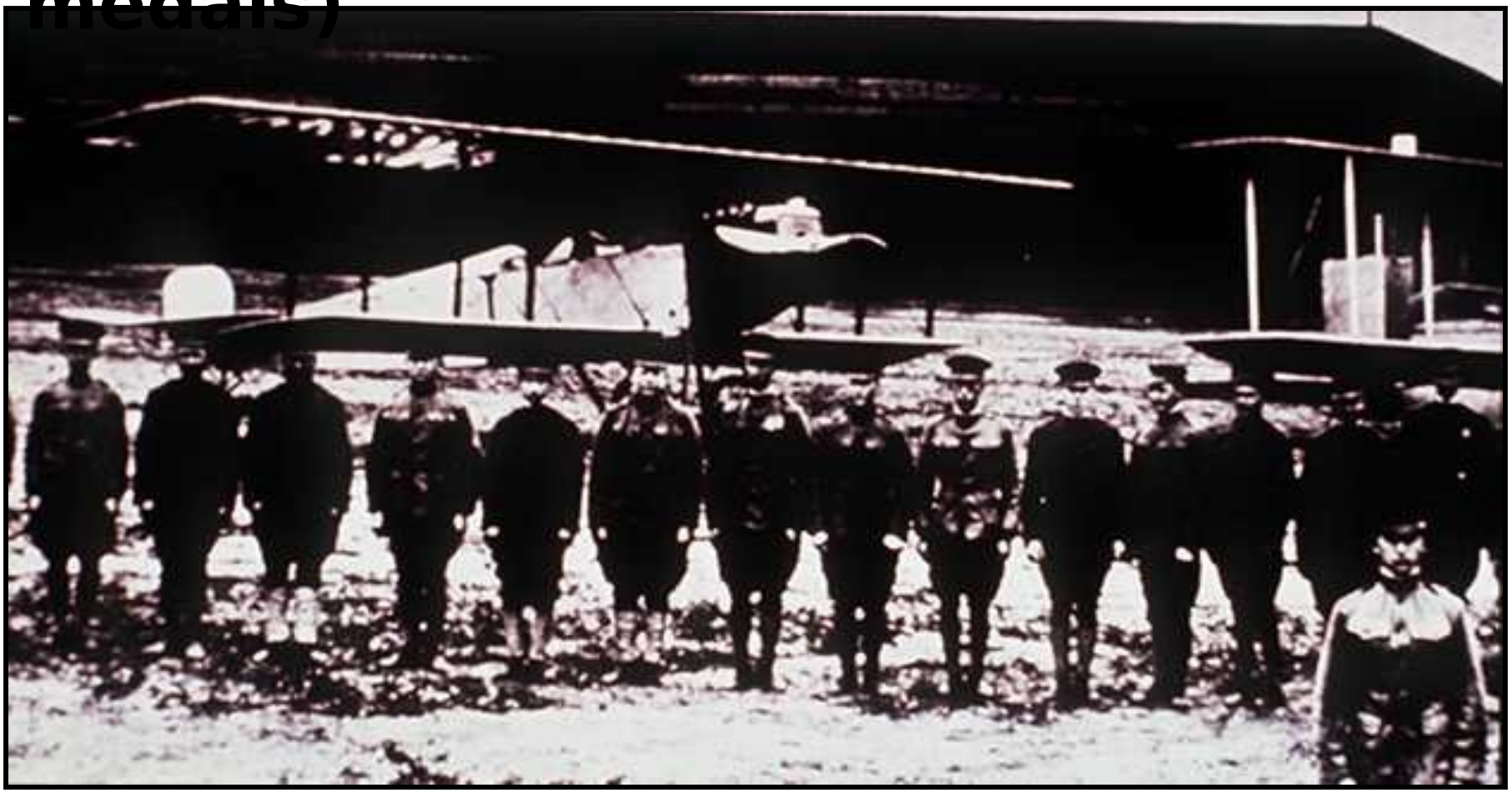

088956
SWITCH
030050
LAMP
OK-384
ALTIMETER
074255
SWITCH
CLOCK

Entire US Air Force (Signal Corps)

Circa 1914



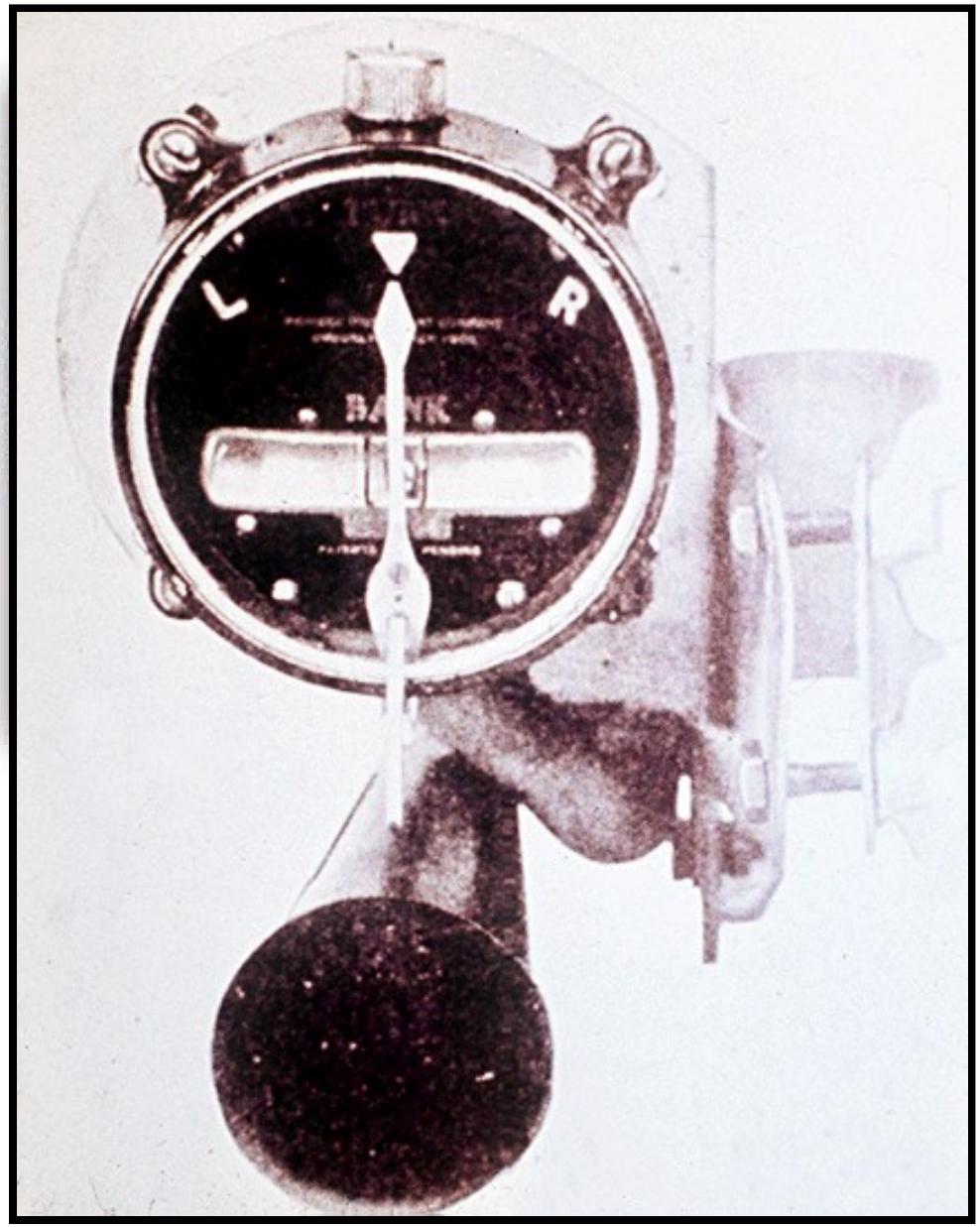
Enlisted Personnel, Sgt Bill Ocker (2 medals)



- Sperry’s bank and turn indicator, 1918

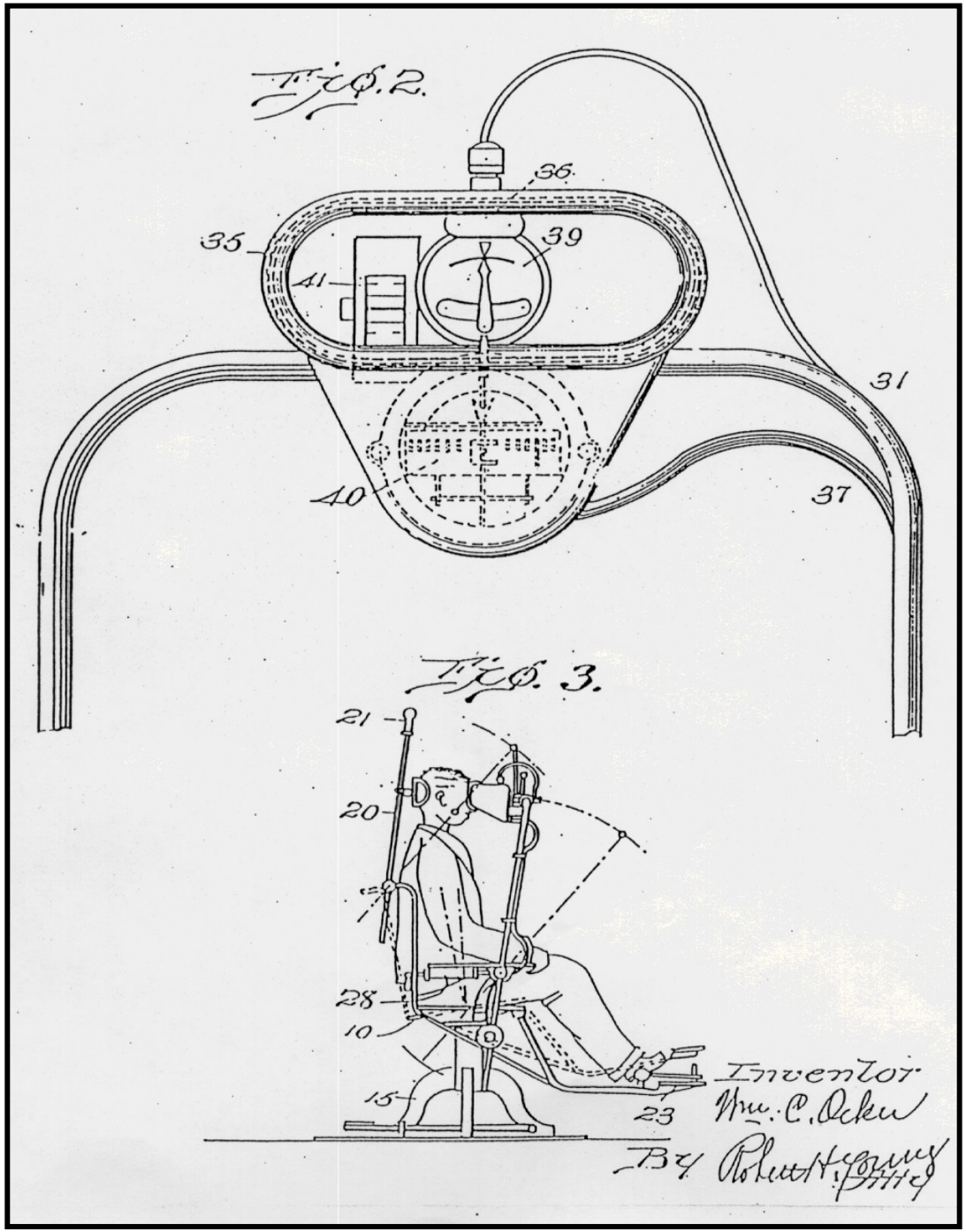
- Worked best in clear weather

- Used by Ocker for 8 years until…

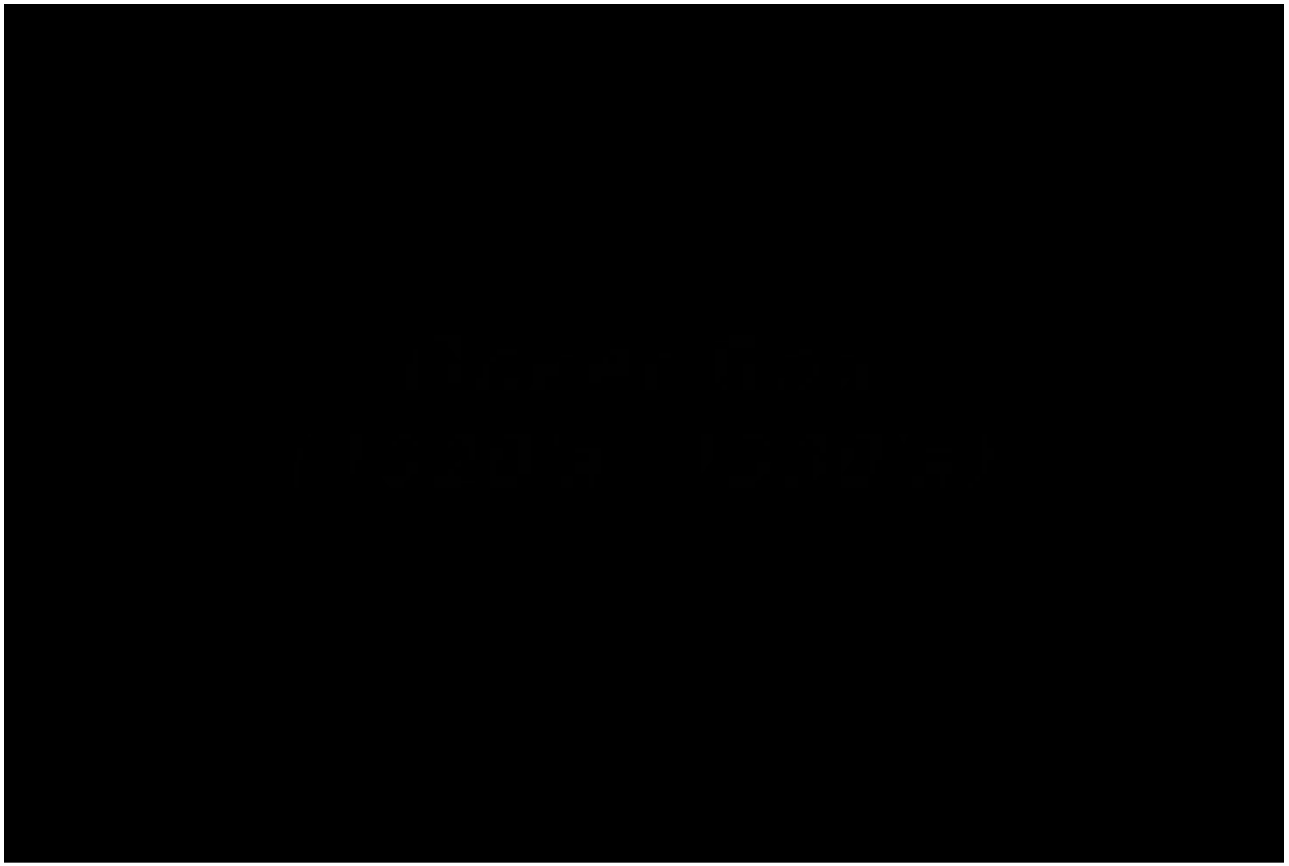


- Capt (Dr) David Myers
- Crissey Field, CA
- Semi-annual flight physical in 1926
- First demonstrab

- Ocker's patent for Vertigo-Stopper Box
- Filed Feb 28, 1928
- Received May 1929



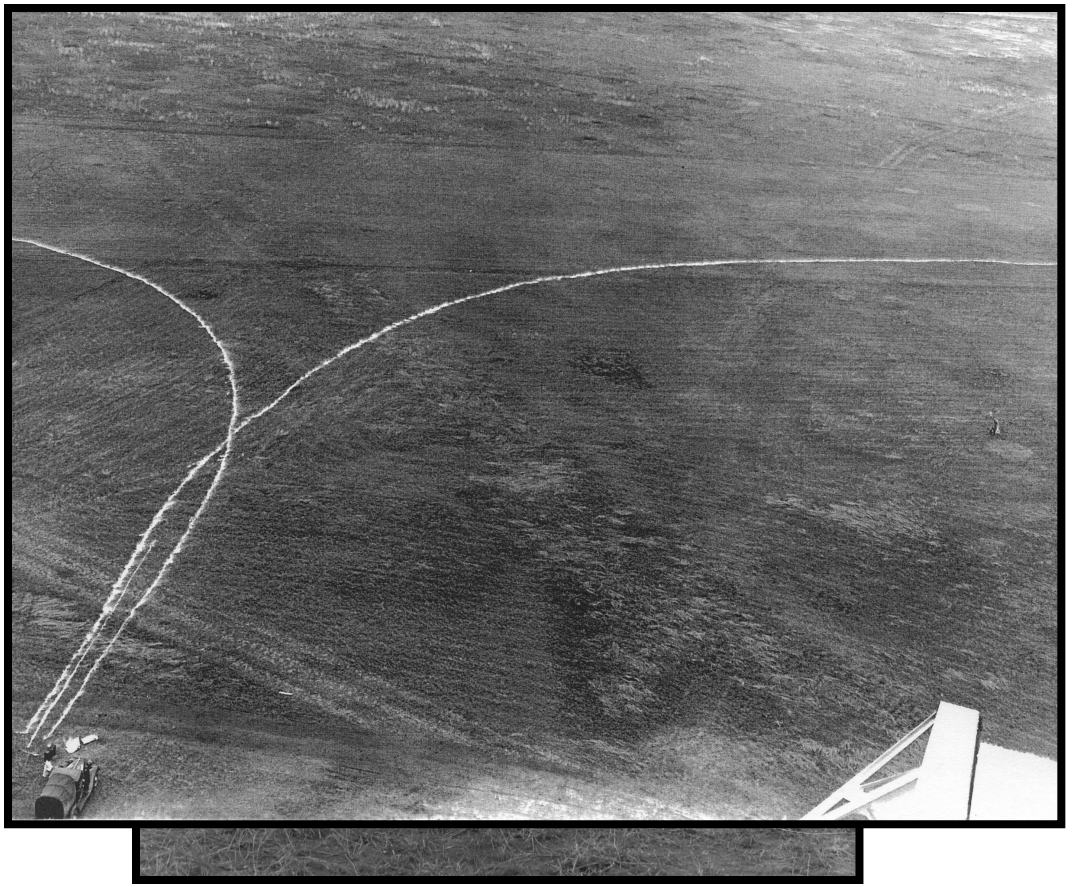
Vertigo-Stopper Box Demonstrations



Carl Crane and Bill Ocker (rear seat)
circa 1929
(note hood for instrument practice)

Blind Flight Experiments
Brooks Field, TX

- Dr A. A. Schaeffer
- Path of blindfolded subjects
- Spiral movement in man
- Walk or swim in clock-spring spiral
- Not a conscious phenomenon



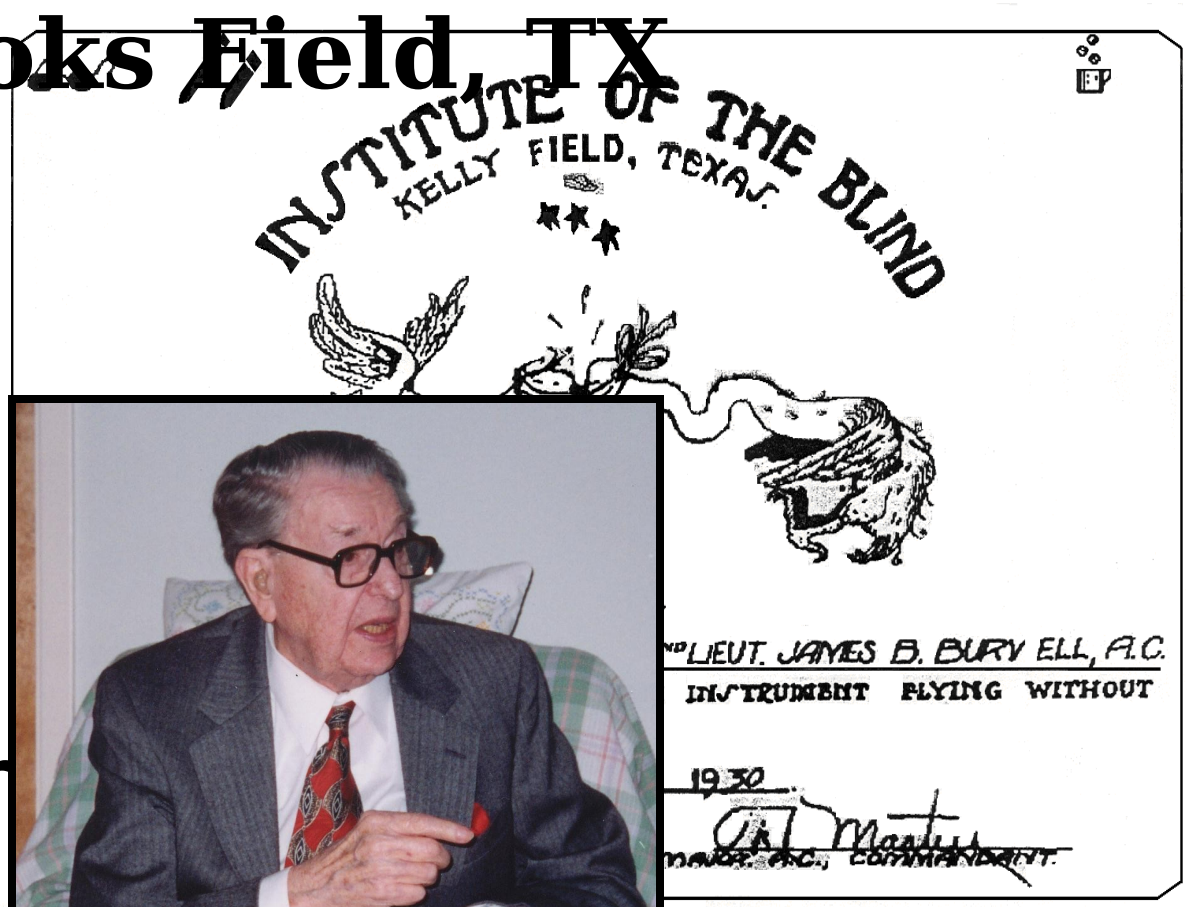
Blind Flight Experiments
Brooks Field, TX

- Theory: Birds don’t need instruments, therefore man doesn’t
- Method: Hoodwink birds and toss them out of the cockpit
- Findings: Birds quickly abandon any attempt at “blind flight”
- Conclusion: Man cannot fly blindfolded any better than the birds

First Formal Instrument Training

Brooks Field, TX

- Ocker and Crane convince ATC/CC of instrument training need
- Graduating class held over for 4 hours of ‘bag’ practice

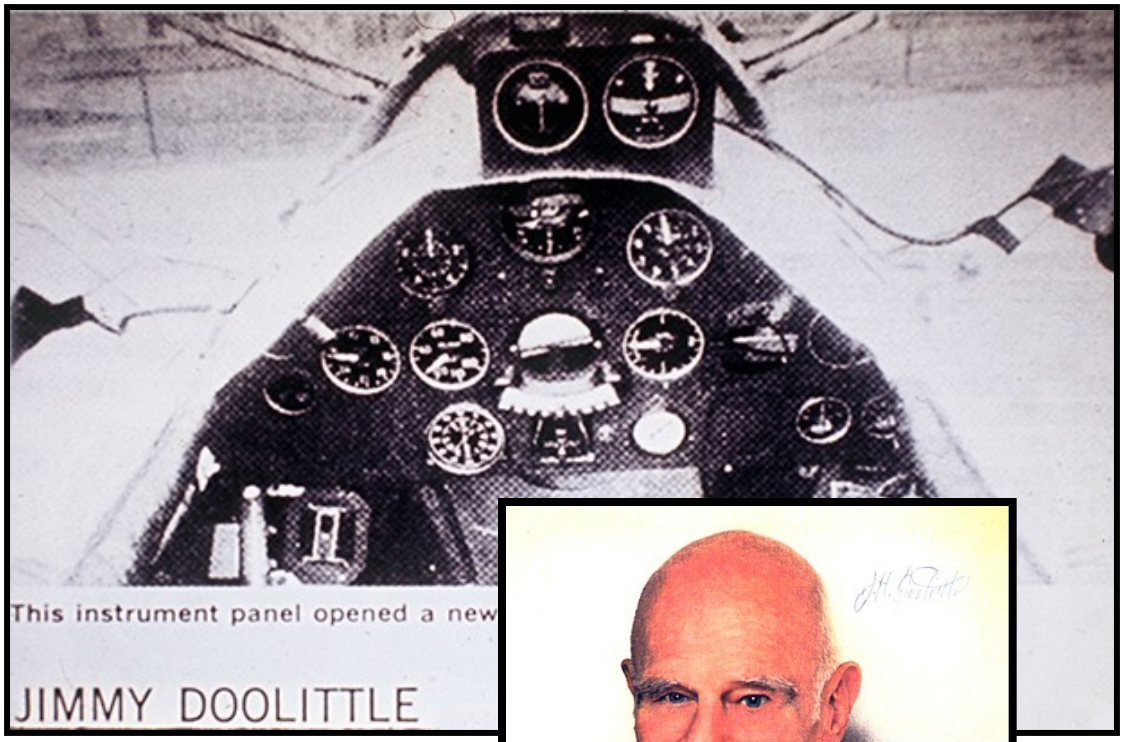


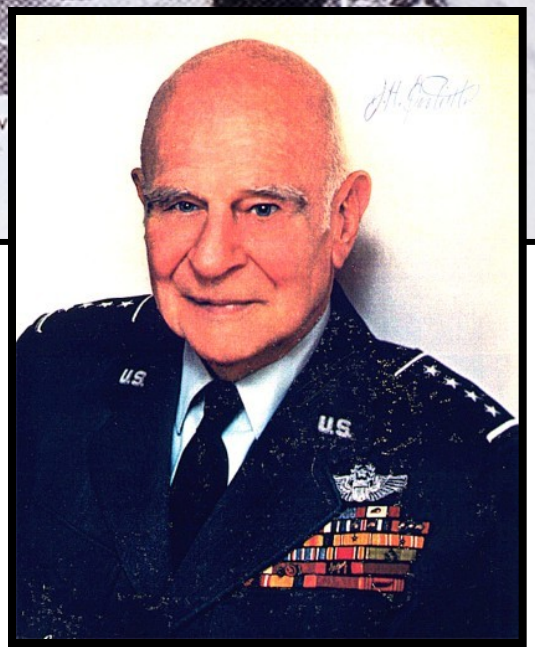
The First “Blind” Sortie

- Sep 24th 1929 under direction of Guggenheim in NY (Mitchel Field)

- First ‘Blind’ sortie, takeoff to landing

- First use of artificial horizon, Kollsman altimeter, and directional gyro





The Big Three

Ocker, Myers, and Crane

Hooded aircraft, Brooks Field, circa

Ocker Courtmartialed!

- Conduct unbecoming an officer
- Trial lasted 9 days
- Ocker received help from noted flyers of the time
- Acquitted

San Antonio Express

SAN ANTONIO, TEXAS, TUESDAY MORNING, JANUARY 9, 1934—SIXTEEN PAGES

Principals

MAJ. WM. C. OCKER.

ARMY DEVELOPER OF BLIND FLYING COURTMARTIALED

Maj. W. C. Ocker Charged With Making Improper Remarks at Physical Test

PROTESTED ORDER

Questions Rigidity of Examinations given for Commander Clagett

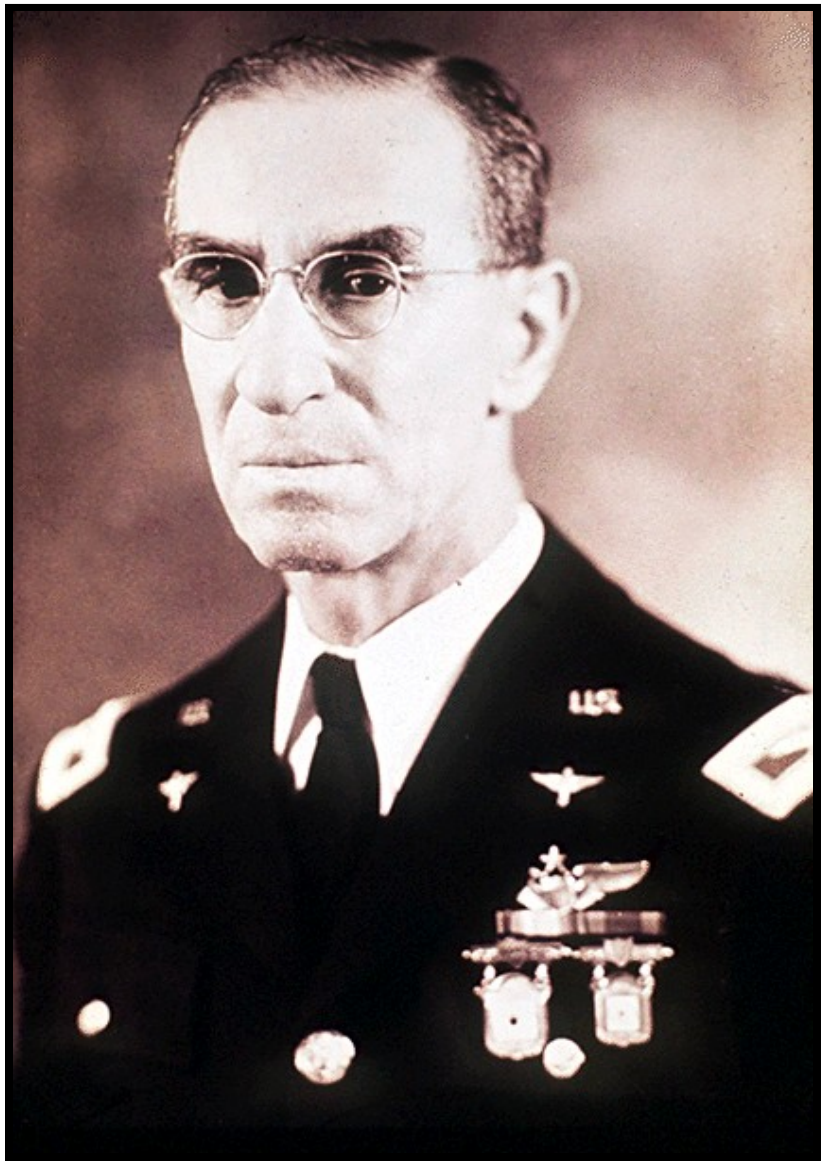
The Army's oldest pilot in point of continuous service and discoverer of the blind-flying methods now almost universally used, Maj. William C. Ocker, Kelly Field, will be tried by a military court at Fort Sam Houston under the 96th Article of War, for making statements "improper and prejudicial to good order and military discipline," regarding Lieut. Col. Henry B. Clagett, commanding officer of Kelly Field.

ARMY PILOT DENIES "CUSSING OUT" CHARGE

FORT SAM HOUSTON, Texas, Feb. 28. (UP)—Maj. William C. Ocker, the army's oldest pilot in point of service and a pioneer inventor of flying devices, pleaded not guilty today at his general court-martial on charges he "cussed out" a superior officer. He was called to plead after the prosecution's only witness for the day testified that Ocker had spoken disparingly and profanely of his superior officer, Lieut. Col. Henry A. Clagett, commandant of Kelly Field.

Colonel William C. Ocker, 1878-1943

- Father of Instrument Flight
- Last official photo, circa 1942, dies less than a year after retiring
- Most flying time by military pilot at the time
- Twice given a psychiatric exam



Colonel Carl J. Crane, 1900-1982

We've come a long way since the 120ft/12sec flight...we still have a long way to go.

The History of Instrument Flight (A Story of Human Factors)

Credits

- Mr. and Mrs. Carl J. Crane
- Mrs. Doris Ocker Osborne
- Dr. Kent Gillingham and SDCM Program
- Members of the AFRL, WPAFB, OH
- Members of the AIS Randolph AFB, TX
- Dr. Kristen Liggett (AFRL/HECI)